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Toward Really Understanding

Media Effects on Advertising Response:

Procedure and Evidence

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The medium through which advertising information is transmitted represents one of the most elemental dimensions of the communication environment. Decisions on channel selection are among the most risky of the "strategic variable" decisions facing the professional communicator since substantial investments are concerned and uncertainty as to the role of the medium in the communication process remains high. The quantitative models which have been developed as surrogates for managerial judgement in combining various inputs to choose a medium will continue to require as integral inputs estimates concerning the effect of the candidate media on the psychological processes which mediate changes in consumer attitudes and intentions. The efficiency of the machine-based models will be just as constrained by the accuracy of these estimates as was that of their human predecessors. Ideally, such estimates would derive from an integrated analysis which considers not only the medium but relevant receiver and message variables, and relies heavily on available behavioral theory for evidence about the interrelationships.

Yet basic behavioral research on communication processes has strangely ignored the medium variable in both theory and research. McGuire, in noting the relative scarcity of empirical evidence on channel factors, explains somewhat obtusely that the basic theories of social influence have just not developed "in ways that make channel factors

interesting (11, p. 225)." The medium is, however, potentially quite interesting if it is important in shaping the process through which information exchange influences behavior. The responsibility of filling this apparent void must fall on those of us seeking to apply behavioral theory in a problem arena where the medium is a variable which must be dealt with.

ANALYZING MEDIA EFFECTS

Considerable evidence is available to enable media comparisons with respect to "exposure potential" within demographically defined audience segments (although caution must be exercised in interpreting this data). Media can be compared on such properties as technical capabilities or the "fit" between editorial climate and product; as Gensch's (5) review illustrates, such judgements remain largely intuitive. On questions of receiver responses more directly related to the persuasion process, little is known about differential media effects. A fairly clear picture has emerged regarding one gross modal distinction; it is well established that face-to-face exchange has more direct impact on attitude and behavioral change than does mass-media communication. The reasons for the relative advantage of the face-to-face channel are not as perfectly understood. Among those suggested have been greater active receiver participation, greater opportunity for overt commitment by the receiver, greater opportunity for immediate strategy adjustment by the communicator, greater perception of source similarity by the receiver, and greater constraint on the receiver's selective inattention.

Experimental psychologists concerned with the processes of selective attention and the interaction of sensory processing systems have begun to examine the mode-of-transmission variable in rigorous laboratory experiments which reduce the communication situation to a level quite removed from complex social communication (e.g., 10, 17). This work has not been concerned with evaluative responses to the incoming information, and, although selective attention is certainly relevant in the study of advertising breakdown, the research has not yet been integrated into the areas of social and mass communication.

In attitude change research, the mode of message transmission has been treated very unsystematically. The assumption behind this lack of experimental control has apparently been that modality differences have no important effect on the processes underlying attitudinal acceptance of information. The recent interest in the effects of "distraction" during presentation of a persuasive message would appear to focus research attention on channel effects since distraction implies multi-channel information streams. However, studies on distraction have interchanged channels just as freely as attitude change studies using other independent variables. In illustration, distraction studies have been reported using audio "messages" and visual "distractions" (1, 3), print "messages" and audio "distractions" (14), audio "messages" and audio "distractions" (16), and even a print "message" with competing information in the form of tastes and odors (7).

A receiver's experience when confronted with a stream of audio information may be quite different from that when confronted with a print

[illegible]

message. In analyzing this experience it is necessary to define the information-handling tasks facing the receiver. He must attend to and classify the incoming message, respond cognitively to that message content, attend to and classify other available information, and respond to that also. Of course what constitutes the "message" and what the "other" information is decided by the receiver, not the communicator. Each of the tasks cited will compete for a share of the individual's total cognitive capacity, and his strategy for accomplishing them efficiently should depend on both his motivation and his capacity to engage in active information-processing. Krugman (8) has suggested that audio transmission is characterized by an uncontrollable rate of stimulation while with print the pace of exposure is controlled by the receiver. When stimulation rate is not controllable, little opportunity would exist for allocation among the competing tasks outlined above by such devices as rereading or pausing to critically contemplate on a point. In such a case, all of the tasks must suffer somewhat with some perhaps being affected more than others.

In one of the few formal discussions of media, Krugman argues that the print medium may be inherently more <u>involving</u> than audio or audio-visual media. This contention remains to be convincingly demonstrated, and the idea should receive critical appraisal before it becomes prematurely entrenched in the marketing literature. Involvement has been treated to various interpretations (4, 12, 15, 19), but the concept of motivational arousal has been a common ingredient. In supporting his model, Krugman's early research relied on a variable called a "connection" as a criterion. A connection was defined as any spontaneous bridging between the stimulus message and the receiver's personal life, as

expressed in his immediate post-exposure thoughts. Print transmission did tend to evoke a greater level of connections than audio-visual. The explanation for this does not necessarily involve "involvement" (arousal), however, but the relative effects of the two modes on the receiver's capacity to respond at all. The medium may operate as a constraint on information processing capacity (by easing or increasing the load per unit time to be handled) but this is distinct from operating on cognitive arousal. Further, audio-visual (television) messages differ from print not only with respect to exposure rate but in the number of tasks offered (an audio plus a visual information stream). Thus it is unclear which property might have constrained the response level. Later research (9) using brain-waves, a more valid criterion of arousal, has been inconclusive.

A person's involvement in processing the information available to him in the immediate environment is a function of his recognition that the information has goal-satisfaction value to him. These goals may be enduring or situationally salient but arousal to process information depends largely on <u>the perceived nature of the specific information</u>. Thus it is quite possible to have highly arousing information flows transmitted through a medium which restricts the receiver's capacity for response, and conversely situations less restrictive in their effect on capacity which are not at all arousing. It is thus realistic to predict that the modality of the message and the receiver's involvement in processing the specific content will interact to shape the nature of the receiver's response function. This interactive relationship would be more congruent

with the accumulated research on attitude change processes which leads us to expect complex interactive relationships among the important variables rather than generalized main effects.

If the argument of an interactive relationship is valid, level of information processing will vary as a joint function of the information mode and the informational content. We will further argue then that processing involvement will tend to have a larger variance across messages in the print medium than in the audio medium. That is, arousal will fluctuate within a more narrow set of limits in the audio mode. Consider a message containing information which itself is not very involving to the receiver. The opportunity for that receiver to avoid engaging in any active processing is much greater when the message is in print than when it's in audio. In print communication one can turn to another more involving piece of information without leaving the medium; in audio communication this is not the case. The stimulus still intrudes upon one's senses and some processing may take place. The lower limit is thus lower for print than for audio messages. Conversely, if processing-involvement operates in a "reverberating" manner, feeding on itself as the receiver's mind links the information to the value system which in turn stimulates other associations related to these values, then an initially involving message may culminate in greater overall arousal when it is in print than in audio. Here the rate-of-exposure feature becomes relevant, since the operation of this reverberating process is limited by time available. We would therefore expect that the effect of informational involvement differences on responses will be more dramatic within the print medium than within the

audio medium. As opposed to a general "high" or "low" processing involvement model, the more appropriate model would be a "wide band" (print) and "narrow band" (audio) model. Such a model accommodates the interaction of medium properties with the properties of the medium content. It is more realistic than either the implicit model adopted by most attitude change researchers (all media equivalent) or that proposed by McLuhan and Krugman (media effects on behavior can be analyzed in isolation of specific media informational content).

EFFECTS ON COGNITIVE RESPONSES

How may these variables be expected to influence consumer response to advertising in a given situation? It is important to focus the analysis on responses which are central to consumer attitude change. A number of responses have been proposed as mediators of an individual's attitudinal acceptance of the message. "Attention" is assumed to be a necessary initiating process. Until recently "comprehension" was considered to be a second important intervening response. Comprehension should imply a sharing of meaning between communicator and receiver, which presupposes that these parties agree beforehand on the significance of the symbols used. The treatment of comprehension, both conceptually and operationally, in research on attitude change has generally lost this essential notion of shared meaning, however, and is in need of reevaluation. Greenwald (6) has recently proposed that the <u>spontaneous cognitive responses</u> activated as the receiver attempts to relate the incoming information to what he already knows and feels constitute the major

mediator of information acceptance. The strong linkage between such responses and post-communication predispositions has been demonstrated in advertising (18) and non-advertising situations (6).

Within the array of thoughts activated in reaction to the advertising message, it is possible to identify conceptually distinct modes of response which may be treated as variables. Among the more important modes are counterargument, support argument and source discounting. To predict the effect of the medium and informational involvement variables on attitudinal acceptance, it is first necessary to determine how they will affect these separate responses which shape the attitudinal outcome.

We are concerned with how variations in a consumer's motivation and capacity to process the information will affect his generation of counterarguments, support arguments, and source discounting. These tasks may be expected to require different levels of cognitive exertion. Counterargument will require considerable receiver input since the receiver must compare the arguments presented, which may be many and new, to relevant beliefs within his existing belief system. The internal evidence he must call on to discredit the message arguments may be "scattered" within his own mental structure, rather prominently available for instant activation. Support arguments should require less effort to generate. The message content itself provides these, so that the decoding and support argument processes are quite complementary. Source evaluation will be comparatively effortless since only a single readily available response to a single element of the information is necessary. Of course, this will depend to some extent on whether the source is identifiable and easily valenced.

It is predicted therefore that support argument and source discounting will be influenced primarily by factors affecting the receiver's capacity for response. Counterargument, since it is a more difficult task, should in addition be significantly affected by motivational factors. The prediction is therefore that print presentation will tend to increase the generation of support arguments and source derogations relative to audio, with acute information involvement having little effect. Counterargument generation should follow the interaction pattern proposed earlier. When information processing involvement is high, counterargument should be greater with print transmission; when involvement is low, it should be less with print transmission.

RESEARCH DESIGN

Subjects

Subjects for this study were 165 adult women drawn from the memberships of various church and social organizations in the central Pennsylvania area. The study was described in all contacts with group leaders or members, as concerned with mass media communication and conducted under the auspices of the Center for Research at the Pennsylvania State University. There was no mention of advertising, marketing, or business administration. Subjects ranged in age from 26 to 53. The women comprising this subject pool were very heterogeneous with respect to their educational, occupational, and social class backgrounds. Compensation for participation was made to the groups rather than to individuals.

Experimental Communications

The topic of the experimental advertisement was a product called "Synthetic Meals," a line of food products made from soybeans and soybean derivatives. This product, although technically hypothetical, was selected after extensive pretesting had established that it met certain criteria judged important in producing a fair and reasonable test of the research hypotheses. Pretesting with similar subjects had shown that the product was characterized by a pre-experimental range of attitudinal positions across individual women, absence of a marked negative or positive bias, a reasonable level of inherent interest, and a moderate degree of newness. Regarding the product's newness, it was found that the product was not felt to be unexpected or discontinuously innovative (somewhat similar products exist). The product has added interest as a research topic because it represents a potential solution to an important social problem.

The experimental advertising message contained six arguments in favor of adopting the product. Briefly, the arguments were: that the product is comparable in taste to natural foods, that the product provides nutritive balance which the typical family meal may lack, that preparation of this product is more trustworthy than packing of natural foods, that the product can aid in weight-control for children, that natural foods may be polluted, and that the price of natural foods is rising. Reading time for the Print version was approximately 1-2 minutes. Playing time for the Audio version was 1 minute, 10 seconds. The Audio version was taped by a professional radio announcer using the station's facilities.

The text of both Audio and Print versions was, of course, identical. In order to simulate as far as possible the natural conditions in which people encounter advertising messages, the experimental advertisement was presented in the midst of surrounding "editorial" matter. This consisted of an excerpt from a national magazine feature, logically adaptable to both print and radio presentation, which preceded the advertisement. This was done to enhance the impression, created by the introduction, that the entire communication was an excerpt taken at random from the mass media, and as a control for artificial stimulation of response to the ad. The editorial passage evoked no responses related to the product nor any overt emotional responses in pretest interviews. The editorial matter was 182 words in length; the advertising message was 192 words long.

Procedure

Experimental sessions were conducted in assembly rooms in the home city of the subject. Subjects were randomly assigned to the four experimental treatments as specified by the 2 X 2 crossed factorial design. The subjects in a particular cell (final cell size of 40) were processed in groups of five or less. Naive experimental assistants monitored each session. All remarks made by the assistants were read directly from a prepared script. Subjects were seated so as to preclude chances for visual or verbal interaction.

The introduction described the study as concerned with people's normal reaction to mass media communications. Subjects were told they would be presented an excerpt from a national magazine or radio show

consisting of a regular feature story and an advertisement. Forewarning of the general nature of the communication was felt to be desirable in that people typically are aware of the general nature of what they will encounter in mass media exposures.

The decision involvement manipulation was accomplished by instructing subjects in the "High Decision Involvement" treatment that they could expect to make a short-run decision about the product appearing in the impending advertisement. The relevance of this decision in terms of their families, their own time and effort, and their personal finances were emphasized. Subjects in the "Low Decision Involvement" treatment received no such instruction.

Subjects were asked to approach the entire communication in a natural manner. They were told that there was "no particular need to memorize." Pretest subjects had revealed that they found themselves trying to memorize the message content in a manner they felt to be atypical of their natural reading or listening style. Because this singular attention to rate-memorization might have interfered with the spontaneity of subjects' cognitive responses, it was deemed advisable to dampen this unnatural memorization urge.

Subjects were then exposed to the experimental communication. Immediately after communication exposure, subjects were given booklet B which contained the Cognition Listing dependent measures. Subjects then turned to Booklet C which contained the remainder of the dependent measures. Subjects were informed there was no time limit for Booklet C. They were asked to work straight through the booklet to the end. Order

of presentation of the dependent measures in Booklet C was: attitudinal acceptance measures, reception measures, cognition weighting, cognition origin. Completion of Booklet C took approximately 25 minutes. Running time for the entire experiment was approximately 35-40 minutes.

Dependent Measures

Cognition Listing

The Cognition Listing measure was contained completely in Booklet B. As discussed earlier, this task was unexpected as a control against an artificial response set. Subjects were instructed to list any and all thoughts relevant to the product Synthetic Meals or to the advertising message which had occurred to them during exposure or which occurred to them now. They were instructed to ignore spelling, punctuation, and grammer since cognition content, not cognition form, was of primary interest. In order to facilitate coding, subjects were asked to use a separate line for each separate thought. Directly beneath the instructions were 18 horizontal lines stretching the width of the paper about ½ inch apart.

Attitudinal Acceptance

The first item used to measure attitudinal message acceptance consisted of elicitating the response of the subject to the statement, "The arguments about the Synthetic Meals product contained in the advertisement were very convincing." The focus of this measure was on the product dimensions covered in the communication; it will be labeled A_c. Subjects

responded on a six-point scale with each point labeled as to degree of agreement. Labels ranged from "strongly agree" to "strongly disagree."

The second measure of attitudinal acceptance consisted of subject response to the questions, "How do you yourself feel about the product Synthetic Meals?" The focus was on overall attitude toward the product (A_p). The response-scale consisted of 26 dots spaced 1/8 inch apart. Endpoints of this scale line were labeled, "I like it very much" and "I don't like it at all." Subjects circled the dot which best designated their feeling on the question. In order to determine the effect of the message on behavioral tendencies, a measure of buying intention (BI) was used as a surrogate for actual purchase behavior. Subjects responded to the question, "Will you purchase the Synthetic Meals product when it becomes available in your local area?" Subjects responded on a five-point scale with each point labeled. Labels ranged from "definitely will" to "definitely won't." This measure was taken at the end of Booklet C; it therefore came approximately 20 minutes after the first two measures.

Reception

Subjects were asked on an open-ended question to reproduce as many of the arguments included in the advertising message as they could. This measure was viewed as more integrally related to post-communication attitude formation than the second measure. A second measure of reception consisted of a number of multiple-choice questions about specific points in the advertising message.

Measurement of Cognition Weights

Subjects were asked to rate each separate thought they had recorded earlier on the Cognition Listing measure with respect to its importance to them in forming an opinion about the Synthetic Meals product. This rating was accomplished by having the subject place a number corresponding to perceived level of importance beside each thought at the edge of the Cognition Listing measure. A rating of "1" was assigned if the thought was "extremely important;" a rating of "2" if the thought was "moderately important;" a rating of "3" if the thought was "slightly important."

Measurement of Perceived Cognition Origin

Subjects were asked to evaluate each separate thought recorded earlier on the Cognition Listing measure according to its perceived origin. If the subject felt that the thought had originated directly in the advertising message, she labeled it with an A. If she felt the thought had been a reaction by her to something stated directly in the advertisement, she labeled it with a B. If the subject felt the thought was one that she had originated and was not a reaction to something directly stated in the advertisement, she labeled it C.

Coding of Cognition-Listing Protocols

Three members of the editorial staff of the Journal of Marketing served as protocol judges.

The scoring convention adopted by this study was as follows: the basis for final rating of each cognition was the modal rating of the

three judges. If 2 of the 3 judges agreed in rating a cognition, that rating was assigned to the cognition. Unanimous agreement among the judges were achieved on 76.7% of the cognitions. Two of the three judges agreed on 22% of the cognitions. Thus, the modal convention resulted in assignment of a rating of 98.7% of the cases on the initial attempt. Only 12 of the 913 cognitions drew initial disagreement among all three judges. These 12 cognitions were presented to the same panel of judges for rejudging. Judges were not told what the ratings in the first attempt had been. Ratings were achieved for all but two of the cognitions on the second trial. Both of the unrated cognitions belonged to the same subject's protocol; that subject's data was consequently eliminated from the study.

An analysis of variance was performed on the first set of cognition ratings to provide an estimate of the inter-judge reliability in assigning category scores to a subject. A separate analysis was conducted for three different cognitive-response categories of importance to the study: cognitive counterarguments, cognitive support arguments, and cognitive source derogations.

The inter-judge reliability in assigning subject's counterargument scores was .957. The inter-judge reliability in assigning support argument scores was .898. The inter-judge reliability in assigning source derogation scores was .959. These coefficients provide evidence of high reliability in the coding of experimental protocols. Taking this evidence together with that provided by the high percentage of unanimous cognition ratings, the use of judges working within a framework of rigorous theoretical category definitions was accepted as a valid method

for the extraction of cognitive response variables from spontaneous, unstructured subject protocols.

ANALYSIS

Verification of the Decision Involvement Manipulation

In order to substantiate empirically that two distinct levels of decision involvement has been created, subjects were asked about the distribution of their attention during exposure to the communication. They responded to the question, "Which part of the communication did you concentrate on most?" on a five point bipolar scale with endpoints labeled "I concentrated most on the story" and "I concentrated most on the advertisement". The mean response for Low Decision Involvement subjects was 2.53 and that for High Decision Involvement subjects was 3.48 (a higher score indicates relatively more attention focused on the advertisement). Not only were these means significantly different ($F = 19.37$, $p < .001$), they fell on opposite sides of the scale midpoint. This was satisfying from the standpoint of experimental validity. Those women in the natural exposure conditions devoted relatively more attention to the editorial matter, while those in the heightened involvement conditions did just the opposite.

Total Cognitive Activity

It was predicted that the environment in which exposure takes place influences the capacity of the receiver for spontaneous response to the message. General level of cognitive response is of interest here rather

than any specific type of response. Results of the analysis using absolute number of codable responses as the dependent measure appear in Table 1. The print mode of presentation evoked significantly greater total response than the audio presentation ($p < .004$). The proposal that the uncontrollable exposure rate characteristic of the audio mode restricts an individual's ability to generate cognitive responses to the message is supported. While heightened involvement in processing the advertising message failed to significantly increase total response levels, the means were in the expected direction.

Cognitive Counterargument

The analysis now turns to the effects of the experimental variables on specific types of spontaneous responses which have been shown to be potentially important mediators of advertising effectiveness. Table 2 shows that level of counterargument was significantly greater among the women who were acutely involved with evaluation of the advertising information than among those who were less involved ($p < .055$). Differences in mode of presentation had no noticeable main effect on the counterargument levels, but interestingly the predicted interaction effect proved to be significant ($p < .04$).

The sources of both the main effect of decision involvement and the interaction effect become clear from an examination of the cell means. The results of the ANOVA are overwhelmingly attributable to differences in counterargument occuring within the print mode treatment. When the advertisement was audio, individuals were able to engage in approximately equal amounts of counterargument regardless of acute involvement. When exposed to the print message, however, those women at a high level of decision involvement engaged in considerably more counterargument (twice

as much) than those at the lower level ($t = 2.88$, $p < .05$). The pattern of observed cell means conforms to that predicted for counterargument by the "wide-narrow band" model. When acute incentive to critically process the message was not high, the women receiving the print version were more successful than their audio version counterparts in disengaging from the exertion of counterarguing. When incentive to process was significantly higher, the print group could produce more counterarguments than the audio group.

An Alternate Mode of Cognitive Resistance: Source Derogation

As discussed earlier, another cue which may be used for active defense against persuasion is a source-derogation. Separate coding categories were established for counterarguments and source derogations. The advantages of the direct measure of spontaneous source derogation used in this study over conventional measures should be noted. Typical post-hoc measures request the subject to evaluate the message source on several rating scales. A real question arises as to whether a source-oriented cognitive strategy had been utilized by the subject naturally or whether the direct question itself stimulated belated source derogation. Since no direct mention of the message source (or any other message property) is made on the cognition-listing measure used here, when a woman did record a thought derogating the source of information it is quite probable that this type of response has actually occurred spontaneously. As we will see, our increased faith in the spontaneity of this response will be important in enabling us to understand the receiver's other responses to advertising.

Miller and Baron (13) worry that separate coding of counterarguments and source derogations might be difficult. No evidence of such an ambiguity was found in this study. In post-coding interviews the protocol judges expressed the opinion that, given the framework of theoretical coding definitions, distinguishing between the two types of cues had posed no problem. The high reliability coefficients obtained for these variables support this.

The analysis of source-derogation data is presented in Table 3. Both of the situational variables produced main effects significant at conservative probability levels. As predicted, women receiving the audio message generated less source derogation than those getting the message in print ($p < .03$). Unexpectedly, women at the higher level of informational involvement generated significantly <u>less</u> spontaneous source derogation than women at the lower level ($p < .001$). In comparing these results with the analysis of counterargument data, a dramatic contrast of cognitive resistance tactics becomes apparent. Heightened decision involvement enhances counterargument relative to natural involvement; this pattern reverses itself for source derogations. Taken together, the two sets of data provide strong evidence that individual consumers adopt quite different cognitive defense strategies depending upon their perceptions of the relevance of an advertisement to their informational needs. This divergence is, of course, relative and it would be misleading to characterize either condition in the study solely in terms of one resistance strategy or the other. Maximum source derogation occurred under conditions where counterargument were minimal.

Support Argument

Table 4 contains the analysis of the support argument data. The analysis shows a significant main effect of modality ($F = 11.35$, $p < .001$) with presentation of the message via the print mode enhancing the level of support arguments generated by the receivers. No evidence that involvement level had an important effect on support argument scores was obtained. Internal analysis revealed that, while the difference between the two modes is more pronounced when involvement was low, level of support argument is significantly higher under print transmission for both high and low involvement ($p < .05$).

Attitudinal Acceptance of the Advertising Message

Having demonstrated that message modality and decision involvement were important situational variables in determining the nature of an individual's spontaneous cognitive responses to an advertising stimulus, it remains to show how the effects of these variables can be observed on attitudinal indices. Three dependent measures are available for this analysis. These measures were operationally described earlier but the theoretical distinction between them should be made clear. Attitude_c measures the individual's evaluation of the product-relevant content of the message. This measure recognizes that a single message cannot contain information on every product dimension that an individual finds relevant, and that one proper measure of message influence focuses strictly on the product as defined only by the information in the message. The measure used is a summary of this message-specific impact.

$Attitude_p$ represents the traditional measure of affect for the global product. The attitude object here is much broader than in the previous measure. The third measure taps behavioral intentions toward the object, or more specifically, intentions to perform a specific behavior under defined conditions. Thus the referent for this measure is even more removed, in terms of the set of relevant cognitive considerations, from the information contained in the message than either of the other measures.

The analysis using each of these measures is presented in Tables 5, 6, and 7. As is apparent, no statistically reliable effects were found when the dependent measure was $Attitude_c$ or $Attitude_p$. The purchase intentions measure did however uncover a statistically significant main effect, with subjects exposed to the print version of the advertisement being more inclined than their audio version counterparts to buy the new product when it was available. ($F = 14.45$, $p < .05$).

A natural question arising from this analysis would be "What's going on here? Why are the dramatic effects of modality and involvement obvious in the cognitive response data not generally mirrored in additudinal outcome data? Why does one outcome measure detect relationships that others don't?" The following analysis, which portrays quite clearly the complexity of communication processes involving multiple mediators, will answer these questions and should provide much insight into the paths which future research in communication and persuasion must take.

Tracing the Process Across Mediators

It is reasonable to expect that a variable proposed as a mediator of some effect should parallel the results obtained on the criterion outcome

in both pattern and intensity. This expectation does not appear confirmed in this study until it is recognized that the cognitive cues represent a set of mediators each of which is more or less operative in a given situation. The pattern of attitude scores should not therefore strictly reflect treatment effects for any single mediator but the composite effects found when the appropriate combination of mediators is analyzed.

If predictions of post-communication attitude were to be based on any single mediator, it would be cognitive counterargument. This variable was clearly more strongly related to attitude than support argument and source derogation in this study (18). Significant involvement and interaction effects were found on counterargument, however, and no comparable effects emerged on any of the three attitude measures. Does this contradict the correlational analysis and imply that counterargument really isn't an important mediator? Not when it is remembered that other cues were also shown to contribute toward explanation of attitudinal variance, and that these cues, when integrated with counterargument may nullify or rearrange the treatment effects substantially.

To demonstrate this, integrational indices have been created based on linear combinations of the sets of mediating cues shown to be appropriate for each attitudinal criterion. These new variables were entered into the analysis of variance and the results are presented in Tables 8 and 9. Working backwards through the criterions affords the clearest organization of the data. Previous analysis had shown that only two of the mediators were important in explaining Buying Intentions; derogation of the message source was not operative when a specific act toward the

product was the focus of the subject's response. Table 8 shows what happens when this two-variable model is analyzed for treatment effects. The model presented is one in which the individual responses have been weighted by the subjective importance assigned to them by the subjects. It has been shown that these weights give a close approximation of the natural weights which would be assigned to the mediators on the basis of a multiple regression analysis. It is possible of course to apply the beta-weights from the within-treatment multiple regression analysis as weighting factors in deriving these integrational indices. There are problems however in using beta-coefficients obtained from the same sample as valid weights within that sample. The weighting would in any case be approximate; such a weighting of the current data was performed and the analysis of indices derived from that showed no substantive departures from that presented here.

When both counterargument and support argument are considered in the dependent index, a significant modality effect is found ($F = 4.82$, $p < .03$), with the print advertisement producing a more positive net response than the audio. Lo and behold, this finding matches that obtained for the Buying Intention measure. In addition internal analysis of the pattern of means reveals that the differences among the experimental cells are identical; in both cases the print mode, high involvement group of women were significantly more positive than either audio group ($p < .05$), but not significantly different from the print mode, low involvement group (for the integrational index, $t = 1.83$, $p < .08$).

But what about the lack of significant effects in the analysis of $Attitude_c$ or $Attitude_p$? For these two variables, all <u>three</u> cognitive response mediators had been found to contribute significantly to the explained variance. Consequently an integrational index was computed incorporating each of the three mediators, again weighted by the subjective importance term. The influence of the source derogation mediator can now be clearly seen (Table 9). Since source derogation had been substantially greater among the subjects receiving the print advertisement, the effect of its inclusion as a mediator is to compress the between-treatment mean differences. The modal effect disappears ($F = 2.99$, $p < .09$) as it had for attitudinal measures $Attitude_c$ and $Attitude_p$. The pattern of means for the three-variable index remains similar to that for both $Attitude_c$ and $Attitude_p$ but the cell differences have been sufficiently dampened by the source derogation variable to decrease the statistical reliability of the relationships.

In summary, the experimental treatments were found to have significant main and interaction effects on the individual cognitive mediators. These effects were, however, markedly different across the mediators. Since several of the mediators operated in unison to shape post-communication attitude, it was necessary to determine the appropriate combination of mediators relevant to each of three theoretically dissimilar post-communication attitudinal indices through separate analysis, and to derive integrational models which captured the <u>compensatory</u> or <u>bolstering</u> effects of the interaction of mediators within experimental cells. When this was done, it was found that effects of medium and decision involvement on

attitudinal acceptance did mirror the effects on the cognitive response mediators.

Message Comprehension

As previously noted, several attitude change models place a heavy explanatory burden on message comprehension. Unfortunately even the sponsors of these models have relied on simple retention measures in operationalizing the concept. Two standard retention measures were taken: a free-recall and an objective aided-choice measure. Analysis of this data is presented in Tables 10 and 11. No discernible treatment effects were discovered.

Other data which may be more pertinent to message comprehension are available however. Subjects indicated their own perception of the origin of each of their thoughts (advertising originated, recipient modified, recipient generated) and analysis of treatment effects within these perceived-origin classes was performed. The results for the "advertising originated" class are particularly relevant. Since the message was one-sided all of these responses were necessarily positive, and the dependent variable was in effect the subjects' supporting arguments which she viewed as having been initiated by the advertisement. The analysis (Table 12) shows that print presentation resulted in significantly more such responses than did audio ($F = 8.55$, $p < .004$). A similar effect was also found, of course, where the dependent variable was amount of support argument regardless of origin. Inspection of the subjects' protocols revealed that thoughts representing paraphrases of message arguments made up a large

subset of all support arguments. These two results may therefore be interpreted as evidence that the print medium facilitated message comprehension.

The conception of message comprehension in persuasion theory needs revision. Comprehension from the receiver's perspective implies having made the information meaningful by relating it to her existing concepts and beliefs. Recall-based measures do not validly tap this quality of meaningful comprehension. The recall measure basically asks the respondent to describe the communication itself. Storing information about the message which was just available in short-term memory may be quite different from meaningful comprehension of it, and in any case, beliefs about the communication itself are relevant only to subsequent behavior toward that communication, not toward its topic. Hence the lack of evidence supporting the learning (recall) - attitude relationship. The cognitive response measurement procedure used here may be a more sensitive and valid indicant of meaningful comprehension. This possibility is worth exploring in future research. Such a measure would still fall short of teasing out the degree of shared meaning between the sender and the receiver but this is extraordinarily complex and may not really be appropriate. After all, whether the meaning understood is equivalent to that intended is important only to the communicator. To the receiver, whatever is understood is what may contribute in shaping attitudes, and, in explaining the receiver's behavior, his perspective is the one to take.

DISCUSSION

Variation in the medium of presentation of the advertisement was systematically related to the consumer's total cognitive activity, support argument

activity, source derogation activity, and, in interaction with the decision involvement variable, counterargument activity. A reasonable conclusion must be that the print mode of presentation differs substantially from the audio mode in terms of the extent and nature of the evaluative cognitive responses it elicits. Taken together with an earlier complementary analysis (18) which demonstrated that the weighting of the mediators was influenced by message modality, these results would seem to point to the desirability of formal treatment of media factors in future communication theory. The data further suggest that variations in a receiver's involvement with the specific message also have an influence on cognitive responses. Consumers at an advanced stage in their decision-making with respect to a product tend to process pertinent advertising information differently than do those with little acute incentive to respond.

One important insight is that both resistive classes of responses reflected sensitivity to differences in consumer information-processing arousal while the supportive mode of response did not. Resistive cognitive activity is therefore seen to be a function not only of the receiver's capacity to engage in extensive response but also the receiver's acute motivation to engage in critical reaction. Supportive activity appeared to be primarily a function of general response capacity.

Both the theoretical model developed to accommodate medium-content interaction and the equally important perspective on the nature of the respective responses mediating attitude change were generally supported. The one unexpected finding concerned the situational interchanging of resistance modes. Critical analysis and rebuttal of message arguments

appears to be a preferred evaluative tactive when the receiver is sufficiently aroused to try it. When no particular arousal is present, the receiver attempts to substitute a judgement of source attributes.

It is important to note that this increased propensity to emit source-discounting responses when arousal is low is not necessarily accompanied by a heavy reliance on those responses in modifying attitudes. In examining the relative weighting of the response cues as mediators of attitudes, counterargument remained as the dominant cue in that condition which found subjects emitting a minimum of counterargument and a maximum of source derogation. The women apparently still regarded the source derogations as poor substitutes for message evaluations. The generation of cues will tend to be a function of their availability. The usage of the cues will, however, have evolved from learning which cues were most reliable in serving the individual's needs for critical monitoring of information and readjustment of beliefs in similar situations in the past.

The Procedure for Predicting Advertising Effects

One of the most enduring lessons to be learned from this study concerns the requirements for prediction and interpretation of communication effects. Models of the mass-media communication process must seek to formally accommodate the operation of multiple cognitive mediators of communication acceptance. This is unfortunate from the standpoint of a parsimonious theory of attitude dynamics, but the measurement procedure and the cognitive response variables developed in this study may offer a basis for systematic investigation of more complex models. If this study had relied solely on attitudinal outcome indices as dependent measures of effect, a

foreseeable conclusion would have been that nothing much happened to the persuasion process as a result of the media and involvement variations imposed on the advertising presentation. However, the spontaneous measures revealed that highly meaningful behavioral differences had taken place across the experimental conditions. One extremely important insight is gained from the finding that when the subjects integrated these cognitive mediators, ostensibly similar post-communication attitudinal effects resulted ($Attitude_c$ and $Attitude_p$) across cells even though the nature of the integration differed markedly within cells. The women arrived at the same apparent outcome through different paths. We cannot help but wonder in dismay about the number of attitude change studies which have been discarded because the outcome measures which failed to detect statistically significant associations masked other important response activity.

In order to systematize our ability to make efficient predictions about the effect of any strategic or environmental variable on attitudinal acceptance of marketing communications, a stage-wise procedure is suggested. The framework for this estimation procedure is a general model linking attitudinal outcome to mediating cues ($A = w_1 M_1 + w_2 M_2 + w_3 M_3 + \ldots w_n M_n$) and a set of variables describing the environment of interest (receiver segment, medium, message, source). (1) The relative importance of the cognitive mediators (the w_n) operating in the environment of interest must be estimated. Such an analysis may use as evidence weights derived from subjective ratings of spontaneous responses by appropriate subjects or from multiple regression analysis. Since it appears that diverse types of cues do operate simultaneously, it is doubtful that intuitive notions of cue

weighting will be consistently accurate (until sufficient research is done to enable development of a theory of cue weighting); (2) The expected effects of the situational variables on the activation of each of these separate types of mediating cues (the M_n) must then by analyzed; and (3) these independent effects combined according to the appropriately weighted integrational model.

This should yield a prediction about the resulting attitudinal outcome. If direct measures of the mediating cues are taken, the location of errors in the estimations at each stage can be detected. Thus not only should initial hypotheses prove more accurate but the frustrating post-hoc guessing game about explanations for unexpected or non-significant findings will be alleviated. Although this approach appears necessary if predictions of communication effects are to become precise and interpretable, its efficacy is limited by our ability to perform each of the steps. The attitude change research tradition has not focused on the mediating cues in investigating relationships, and consequently provides little theoretical insight relevant to steps 1 and 2 at this point in time. The current research provides some initial evidence on these questions, and there is scattered evidence available concerning the relationship of several independent variables to counterargument generation.

This paper has made two proposals relative to the future directions of advertising research. One of these concerned the formal treatment of the medium as a variable, and the other outlined a more complex but necessary approach to attitude change research focusing on the mediating cues. Leo Bogart has observed "The twilight areas of advertising research are

precisely those of social psychology in general.... Progress in advertising research will rarely be in advance of our general understanding of such subjects as the learning process, perception, motivation (2, p. 6)." There is no reason why applied research cannot contribute at both levels.

TABLE 1

Mean Total Cognitive Activity Scores

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	3.075	3.025	3.050
Print	4.125	3.400	3.762
Total	3.600	3.212	

Analysis of Variance: Mean Total Cognitive Activity Scores

Source	SS	df	MS	F	p
MODE	20.306	1	20.306	8.52	.004
DECISION INVOLVEMENT	6.006	1	6.006	2.52	.114
INTERACTION	4.556	1	4.556	1.91	.169
ERROR	371.725	156	2.383		

TABLE 2

Mean Cognitive Counterargument Scores

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	1.225	1.250	1.237
Print	1.600	.825	1.212
Total	1.412	1.037	

Analysis of Variance: Cognitive Counterargument Scores

Source	SS	df	MS	F	p
MODE	.025	1	.025	.017	.897
DECISION INVOLVEMENT	5.625	1	5.625	3.785	.054
INTERACTION	6.400	1	6.400	4.306	.040
ERROR	231.850	156	1.486		

TABLE 3

Mean Cognitive Source Derogation Scores

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	.100	.305	.200
Print	.325	.525	.425
Total	.212	.412	

Analysis of Variance: Source Derogation Scores

Source	SS	df	MS	F	p
MODE	2.025	1	2.025	4.879	0.029
DECISION INVOLVEMENT	1.600	1	1.600	3.855	0.001
INTERACTION	0.000	1	0.000	0.000	1.000
ERROR	64.750	156	0.415		

TABLE 4

Mean Cognitive Support Argument Scores

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	.625	.525	.575
Print	1.150	1.375	1.262
Total	.887	.958	

Analysis of Variance: Cognitive Support Argument Scores

Source	SS	df	MS	F	p
MODE	18.906	1	18.906	11.351	.001
DECISION INVOLVEMENT	.156	1	.156	.094	.760
INTERACTION	1.056	1	1.056	.634	.427
ERROR	259.825	156	1.665		

TABLE 5

Mean Score on $Attitude_c$

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	3.200	2.900	3.050
Print	3.050	3.550	3.300
Total	3.165	3.225	

Analysis of Variance: $Attitude_c$

Source	SS	df	MS	F	p
MODE	2.500	1	2.500	1.115	.293
DECISION INVOLVEMENT	.400	1	.400	.178	.673
INTERACTION	6.400	1	6.400	2.854	.093
ERROR	349.800	156	2.242		

TABLE 6

Mean Score on $Attitude_p$

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	9.075	8.525	8.800
Print	9.850	10.070	10.275
Total	9.462	9.612	

Analysis of Variance: $Attitude_p$

Source	SS	df	MS	F	p
MODE	87.025	1	87.025	1.722	.191
DECISION INVOLVEMENT	0.900	1	0.900	.018	.894
INTERACTION	19.600	1	19.600	.388	.534
ERROR	7884.250	156	56.540		

TABLE 7

Mean Buying Intentions Score

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	3.69	3.45	3.57
Print	4.12	4.60	4.36
Total	3.92	4.01	

Analysis of Variance: Buying Intentions

Source	MS	F	p
MODE	14.45	4.25	.042
DECISION INVOLVEMENT	3.08	.91	.343
INTERACTION	.35	.10	.747
ERROR	3.39		

Table 8

Two-Mediator Weighted Integrative Index

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	-1.625	-1.65	-1.64
Print	-1.00	1.325	.16
Total	-1.30	- .16	

Analysis of Variance: Two-Mediator Index

Source	MS	F	p
MODE	129.6	4.82	.03
DECISION INVOLVEMENT	52.9	1.97	.16
INTERACTION	55.2	2.05	.15
ERROR	26.9		

TABLE 9

Three-Mediator Weighted Integrative Index

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	-1.82	-2.12	-1.97
Print	-1.57	.65	- .46
Total	-1.70	- .74	

Analysis of Variance: Three-Mediator Weighted Index

Source	MS	F	p
MODE	91.52	2.99	.085
DECISION INVOLVEMENT	37.18	1.21	.270
INTERACTION	63.70	2.08	.151
ERROR	30.55		

TABLE 10

Mean Unaided Recall Scores

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	2.450	2.225	2.337
Print	2.900	2.375	2.637
Total	2.675	2.300	

Analysis of Variance: Unaided Recall

Source	SS	df	MS	F	p
MODE	3.600	1	3.600	1.692	.195
DECISION INVOLVEMENT	5.625	1	5.625	2.644	.106
INTERACTION	.900	1	.900	.423	.516
ERROR	331.850	156	2.167		

TABLE 11

Mean Aided Recall Scores

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	1.875	1.900	1.887
Print	1.800	1.675	1.737
Total	1.837	1.787	

Analysis of Variance: Aided Recall Scores

Source	SS	df	MS	F	p
MODE	.900	1	.900	2.155	.144
DECISION INVOLVEMENT	.100	1	.100	.239	.625
INTERACTION	.225	1	.225	.539	.464
ERROR	65.150	156	.417		

TABLE 12

"Advertising-Originated" Cognitions

MODE	DECISION INVOLVEMENT		
	High	Low	Total
Audio	.175	.150	.162
Print	.425	.775	.600
Total	.300	.462	

Analysis of Variance: Advertising-Originated Cognitions

Source	MS	F	p
MODE	7.65	8.55	.004
DECISION INVOLVEMENT	1.05	1.18	.279
INTERACTION	1.40	1.57	.212
ERROR	.89		

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